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EXAMINER

NGUYEN, C

ART UNIT

PAPER NUMBER

2831

DATE MAILED:

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/147,320

Applicant(s)
Leijon et al.

Examiner
Chau Nguyen

Group Art Unit
2831



☒ Responsive to communication(s) filed on Jan 20, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 19-38 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 19-38 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 19, 31, 34, 36 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Breitenbach et al.

Breitenbach et al. discloses an insulated conductor (fig. 2) comprising one or more strands (means for conducting, 5) an inner conductive layer (means for creating a first equipotential surface, semiconductive layer 7), an insulating layer (means for separating, 8), an outermost conductive layer (means for creating a second equipotential surface, semiconductive layer 10), the outermost conductive layer comprising a polymer and carbon black (means for setting a resistivity), the resistivity of the outermost conductive layer being 10 ohm*cm (as stated by the applicant, see the applicant's amendment filed on Sept. 13, 1999, page 9, lines 1-2) (claims 19&38). Breitenbach et al. also discloses the insulating layer being made of EPR (col. 4, lines 46) (claim 34) and the insulated wire being used for a high-voltage winding in an electric machine (claim 36).

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The method limitation, extruded (claim 31), does not contribute to the patentability of the product claims since it has been held that the patentability of a product does not depend on its method of production. In re Thorpe, 777 F2d, 695, 698, 227 USPQ 964, 966.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breitenbach et al. as applied to claim 19 above, and further in view of Elton et al. (5,066,881).

Claim 20 additionally recites the outermost conductive layer being grounded at at least two different points. Elton et al. discloses an insulated wire (fig. 7) wherein the outer conductive

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layer (110) is grounded (at 112). It would have been obvious to one skilled in the art to ground the outermost conductive layer of the Breitenbach et al. wire as taught by Elton et al. to establish and maintain the potential of the conductive layer. It would have been obvious to one skilled in the art to provide another grounding point on the outermost conductive layer of the Breitenbach et al. wire to improve the grounding effect of the outer layer because it has been held that duplicating an essential working part of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Re claim 21, the outermost (semi) conductive layer of Breitenbach et al. has a resistivity being lower than that of the insulating layer (8) and higher than that of the material (conductive material) comprising the one or more strands.

5. Claims 19 and 22-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Miyauchi et al. (3,684,821) in view of Hvizd, Jr. et al.

Miyauchi et al. discloses an insulated wire comprising one or more strands (1), an inner (semi) conductive layer (2) surrounding the one or more strands, an insulating layer (3) surrounding the inner conductive layer, and an outermost (semi) conductive layer (4) surrounding the insulating layer. Miyauchi et al. does not the outermost layer having a resistivity of 10 to 500 ohm *cm (claim 19) or of 50 to 100 ohm*cm (claim 22).

Hvizd, Jr. et al. discloses an invention related to an insulated high-voltage cables. Hvizd, Jr. et al. discloses that it is well-known in the high voltage cable art that semiconductive material

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having resistivities in the range of 1 to 1,000,000 ohm*cm (col. 2, line 65-67). It would have been obvious that depending on the specific use of the resulting wire, one skilled in the art would choose a suitable resistivity for the outermost layer of Miyauchi et al. to meet the specific requirement since a resistivity having ranges of 10 through 500 ohm*cm or 50 through 100 ohm*cm are well-known in the cable art for semiconductive material as taught by Hvizd, Jr. et al.

The resistances as recited in claims 23-25 are inherent from the modified outer layer of Breitenbach et al. since the modified Breitenbach et al. outer layer has the resistivity as claimed in claim 19.

6. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breitenbach et al. as applied to claim 19 above, and further in view of Silver et al.

Claim 26 additionally recites the resistivity of the outermost conductive layer being set by a type of the base polymer, a type of the carbon black and a proportion of the carbon black relative to an entire formulation of the outer conductive layer. Silver et al. discloses an insulated wire comprising a conductive layer (3 or 4) being made of a base polymer and a carbon black. Silver et al. discloses the resistivity of the layer being set by a type of the base polymer (col. 4, lines 35-39), a type of the carbon black and a proportion of the carbon black relative to an entire formulation of the layer (col. 1, lines 20-37). It would have been obvious to one skilled in the art to choose suitable types of polymer and carbon black and use an appropriate amount of the

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carbon black as taught by Silver et al. to meet the specific required resistivity of the Breitenbach et al. outermost layer.

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breitenbach et al. and Silver et al. as applied to claim 26 above, and further in view of Cloetens et al.

Claim 27 additionally recites the base polymer comprising an ethylene butyl acrylate copolymer. Cloetens et al. discloses an invention related to an electrical insulating composition comprising ethylene butyl acrylate as a base polymer (col. 3, line 43). It would have been obvious to one skilled in the art to use ethylene butyl acrylate as the base polymer for the outermost layer of the modified Breitenbach et al. wire since ethylene butyl acrylate is a well-known polymer being used in electrical cables as taught by Cloetens et al.

8. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyauchi et al. and Hvizd, Jr. et al. as applied to claim 25 above, and further in view of Yamanouchi et al.

Claim 28 additionally recites the outermost conductive layer being cross-linked by peroxide. Yamanouchi et al. discloses an invention related to a XLPE insulated cable comprising a cross-linking agent which is a peroxide (col. 1, line 19). It would have been obvious to one skilled in the art to cross-link the outermost conductive layer of the modified Miyauchi et al. wire by using peroxide as a cross-linking agent since it is known in the art that to cross-link a material is to increase strength, heat- and electrical resistance of the material and peroxide has a relatively

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high cross-linking efficiency and suitable decomposition temperature as taught by Yamanouchi et al. (col. 1, lines 20-23).

9. Claims 29 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breitenbach et al. and Silver et al. as applied to claim 26 above, and further in view of Yamanouchi et al.

Claim 29 additionally recites the outermost conductive layer being cross-linked by peroxide, and claim 33 additionally recites the insulating layer being a XLPE. Yamanouchi et al. discloses an invention related to a XLPE insulated cable comprising a cross-linking agent which is a peroxide (col. 1, line 19). It would have been obvious to one skilled in the art to use peroxide to cross-link the outermost conductive layer of the modified Breitenbach et al. wire since peroxide has a relatively high cross-linking efficiency and suitable decomposition temperature as taught by Yamanouchi et al. (col. 1, lines 20-23). It would also have been obvious to one skilled in the art to use XLPE for the insulating layer of Breitenbach et al. since XLPE is suitable for use in a high-voltage or super high-voltage cable as taught by Yamanouchi et al. (col. 1, lines 9-12).

10. Claims 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyauchi et al. and Hvizd, Jr. et al. as applied to claim 19 above, and further in view of Olsson et al.

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The modified Miyauchi et al. wire does not disclose an adhesion between the insulating layer and the outermost conductive layer. Olsson et al. discloses an insulated wire wherein the insulating layer (3) is strongly bonded (adhered) to the outer conductive layer (4). It would have been obvious to one skilled in the art to provide a strong bond between the insulating layer and the outermost conductive layer in the modified Miyauchi et al. wire to eliminate the risk of corona occurrence as taught by Olsson et al. (col. 3, lines 30-33).

The method limitation, extrusion through a multilayer head (claim 32), does not contribute to the patentability of the product claims since it has been held that the patentability of a product does not depend on its method of production. In re Thorpe, 777 F2d, 695, 698, 227 USPQ 964, 966.

11. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breitenbach et al. as applied to claim 19 above, and further in view of Simmons et al.

Claim 35 additionally recites the insulating layer being made of LDPE, HDPE or PP. Simmons et al. discloses an extra high-voltage cable comprising an insulating layer (5) being made of HDPE or PP (col. 2, line 36). It would have been obvious to one skilled in the art to use HDPE or PP for the insulating layer of Breitenbach et al. since HDPE or PP has a relatively high electric strength such that the thickness of the insulating layer can be significantly reduced as taught by Simmons et al. (col. 2, lines 40-44).

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12. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breitenbach et al.

Breitenbach et al. discloses an insulated conductor (fig. 2) comprising one or more strands (5) an inner conductive layer (7), an insulating layer (8), an outermost conductive layer (10), the resistivity of the outermost conductive layer being 10 ohm*cm (as stated by the applicant, see the applicant's amendment filed on Sept. 13, 1999, page 9, lines 1-2).

Breitenbach et al. does not specifically disclose the insulated wire being used in a rotating electrical machine. However, it would have been obvious to one skilled in the art to use the insulated wire of Breitenbach et al. in a rotating electric machine since the insulated wire of Breitenbach et al. is suitable for being used in high-voltage applications and using an insulated wire in a rotating electrical machine is well-known in the art.

Response to Arguments

13. Applicant's arguments with respect to claims 19 and 36-38 have been considered but are moot in view of the new ground(s) of rejection except for the following.

Applicant argues that the claimed range, 10-500 ohm*cm, is critical because the cable cannot be used as a high voltage winding in an electric machine if the outermost layer has a resistivity out of the claimed range. This argument is not found persuasive. If the claimed range, 10-500 ohm*cm is a critical range for the claimed invention, the only range allowing the cable

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being operated in high voltage winding, then why the claimed range, 50-100 ohm*cm, is also recited in the claimed invention. It is unclear to which range is a critical range.

Summary

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Communication

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau Nguyen whose telephone number is (703) 308-0693.

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CN

March 8, 2000

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